APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,128	02/09/2001	Patrick J. LaCour	MEGC116848	1693

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EXAMINER
CHU, CHRIS C

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 08/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/781,128	LACOUR ET AL.
	Examiner	Art Unit	
	Chris C. Chu	2815	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _22 May 2003_ .

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1 - 34_ is/are pending in the application.

    4a) Of the above claim(s) _15 - 19, 21 and 23 - 27_ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1 - 14, 20, 22 and 28 - 34_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _27 April 2001_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _4_ .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: .

DETAILED ACTION

Election/Restrictions

1.   Applicant's election of Group I in Paper No. 7 is acknowledged. Because applicant did
not distinctly and specifically point out the supposed errors in the restriction requirement, the
election has been treated as an election without traverse (MPEP § 818.03(a)).

Drawings

2.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they
do not include the following reference figure mentioned in the description: on page 4, lines 1 and
2 of the specification refers a Fig. 3F which is missing. A proposed drawing correction or
corrected drawings are required in reply to the Office action to avoid abandonment of the
application. The objection to the drawings will not be held in abeyance.

3.   Applicant is required to submit a proposed drawing correction in reply to this Office
action. However, formal correction of the noted defect may be deferred until after the examiner
has considered the proposed drawing correction. Failure to timely submit the proposed drawing
correction will result in the abandonment of the application.

Specification

4.   The disclosure is objected to because of the following informalities: on page 6, line 30,

"P10 – P18" should be --P10, P12, P14, P16 and P18--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6.   Claims 1 ~ 14, 20, 22 and 28 ~ 34 are rejected under 35 U.S.C. 102(b) as being

anticipated by Leipold.

Regarding claim 1, Leipold discloses in Fig. 7 a method of translating device layout data

into a format for use by a mask writing tool, comprising the acts of:

-   reading a file (710) that defines a number of cells used to produce a device;

-   selecting one or more of the cells (714);

-   creating one or more modified cells (716 ~ 720) based on the interaction of the

    selected cells with other cells in the device layout data; and

- creating a description of the modified cells (722) as well as their placements on the mask in a format that is readable by the mask writing tool.

Regarding claim 2, Leipold discloses in Fig. 7 the extents of at least some of the descriptions of the modified cells to be written on the mask overlap.

Regarding claim 3, Leipold discloses in Fig. 2 and Fig. 7 the step of creating one or more modified cells, further comprising the act of: creating one or more additional cells (226) that create structures on the mask that are not created by writing the descriptions of the modified cells and prevent extraneous structures from being created on the mask when descriptions of the modified cells are written.

Regarding claim 4, Leipold discloses in Fig. 2 and Fig. 7 creating one or more additional cells (226) that create structures on the mask that are not created by writing the descriptions of the modified cells and prevent extraneous structures from being created on the mask when descriptions of the modified cells are written.

Regarding claim 5, Leipold discloses in Fig. 6 and Fig. 7 the selection of cells being limited to cells that are repeated in the device layout data.

Regarding claim 6, Leipold discloses in Fig. 4 and Fig. 7 each cell having a number of polygons (418) that define structures to be created on the mask and wherein the selection of cells being limited to cells having a pattern of polygons (418) that is repeated in the device layout data.

Regarding claim 7, Leipold discloses in Fig. 4 and Fig. 7 each of the cells including a number of polygons (418) that define structures to be created on the mask and wherein the act of

creating one or more modified cells includes the act of: adding polygons (420) to a selected cell

that correspond to polygons from cells that overlap the selected cell.

Regarding claim 8, Leipold discloses in Fig. 2, Fig. 7 and column 1, lines 26 ~ 35 the act

of selecting one or more cells further comprises the act of: selecting cells that maximize the area

of the mask written with the descriptions of the selected cells and minimizes the time required to

write the structures defined by the selected cells.

Regarding claim 9, Leipold discloses in Fig. 2 ~ Fig. 7 and column 3, line 66 ~ column 4,

line 6 the act of creating a description of the modified cells further comprising the acts of:

determining if the mask writing tool is capable of transforming the description of a modified cell

to orient it in a proper direction and creating a suitable description of the modified cell that the

mask writing tool can transform to orient the description of the modified cell in the proper

direction.

Regarding claim 10, Leipold discloses in Fig. 1 the method being executed using one or

more computers.

Regarding claim 11, Leipold discloses in Fig. 1 and column 3, lines 11 ~ 26 at least one

of the one or more computers having multiple processors, and cell selection and creation are

executed using several processors simultaneously.

Regarding claim 12, Leipold discloses in Fig. 6 and Fig. 7 a method of creating a jobdeck

for a mask writing tool, comprising the acts of:

- reading a file (710) that defines a device layout, the file including a number of cells

   that define structures to be created on a mask;

- creating a set of cells (N and M) in which at least two cells in the set have

  overlapping extents; the set of cells including:

  • one or more of the cells (M) that are repeated in the device layout and that are

    modified (M_1) to compensate for interactions with other cells in the device

    layout; and

  • one or more remainder cells (N) that have structures that do not correspond to

    those in the modified cells and also contain areas to prevent extraneous

    structures on the mask from being created by writing files that correspond to

    the modified cells at selected locations on the mask;

- creating a set of mask writer files (612 and 614 at the step 720) that correspond to the

  modified cells and the one or more remainder cells; and

- generating a jobdeck (722) for the mask writing tool that specifies the set of mask

  writer files and their locations on the mask.

Regarding claim 13, Leipold discloses in Fig. 1 the method being executed using one or

more computers.

Regarding claim 14, Leipold discloses in Fig. 1 and column 3, lines 11 ~ 26 the one or

more computers having multiple processors, and cell selection and creation being executed using

several processors simultaneously.

Regarding claim 20, Leipold discloses in Fig. 2, Fig. 6 and Fig. 7 a method of operating a

mask writing tool to produce a mask for a layer of a device, comprising the acts of:

- reading a number of files (710), each of which define structures to be created on the

  mask;

- reading a list of positions (712) at which a corresponding file is to be written on the mask;

- positioning a stage (714) according to the list and writing a corresponding file;

- reading a description of one or more remainder files (N) that define structures on the mask that are not created by writing the files at the positions on the list and for preventing the creation of structures on the mask that would be created by writing the files at the positions on the list; and

- positioning the stage and writing (722) the one or more remainder files on the mask.

Regarding claim 22, Leipold discloses in Fig. 2, Fig. 6 and Fig. 7 a mask for creating a layer of a device that is created by the acts of:

- reading a series of files (710) at least some of which define structures that are repeated (N) in the device layer and some of which have extents that overlap;

- reading a number of positions (712) at which the series of files are to be written;

- moving a stage (720) to the positions indicated; and

- writing the files and the positions indicated (722).

Regarding claim 28, Leipold discloses in Fig. 2, Fig. 3, Fig. 6 and Fig. 7 a method of translating device layout data into a format for use by a wafer writing tool, comprising the acts of:

- reading a file (710) that defines a number of cells used to produce a device;

- selecting one or more of the cells (714);

- creating one or more modified cells (716) based on the interaction of the selected cells with other cells in the device layout data; and

- creating a description of each of the modified cells (722) as well as their placements

on the wafer in a format that is readable by the wafer writing tool.

Regarding claim 29, Leipold discloses in Fig. 2, Fig. 6 and Fig. 7 the extents of at least

some of the cells to be written on the wafer overlap.

Regarding claim 30, Leipold discloses in Fig. 2, Fig. 3, Fig. 6 and Fig. 7 a computer-

readable medium having stored thereon a sequence of instructions that, when executed by the

computer, cause the computer to translate device layout data into a format for use by a mask

writing tool by:

- reading a file (710) that defines a number of cells used to produce a device;

- selecting one or more of the cells (714);

- creating one or more modified cells (716) based on the interaction of the selected

cells with other cells in the device layout data; and

- creating a description of the modified cells (722) as well as their placements on the

mask in a format that is readable by the mask writing tool.

Regarding claim 31, Leipold discloses in Fig. 2, Fig. 6 and Fig. 7 the instructions causing

the computer to create one or more modified cells by: creating one or more additional cells (226)

that create structures on the mask that are not created by writing the description of the modified

cells and prevent extraneous structures from being created on the mask when descriptions of the

modified cells are written.

Regarding claim 32, Leipold discloses in Fig. 2, Fig. 6 and Fig. 7 the instructions causing

the computer to create one or more additional cells (226) that create structures on the mask that

are not created by writing the descriptions of the modified cells and prevent extraneous structures

from being created on the mask when descriptions of the modified cells are written.

Regarding claim 33, Leipold discloses in Fig. 2, Fig. 3, Fig. 6 and Fig. 7 a computer-

readable medium including a series of instructions that, when executed by a computer cause the

computer to create jobdeck for a mask writing tool by:

- reading a file (710) that defines a device layout, the file including a number of cells

  that define structures to be created on a mask;

- creating a set of cells (N and M) in which at least two cells in the set have

  overlapping extents; the set of cells including:

  - one or more of the cells (M) that are repeated in the device layout and that are

    modified (M_1) to compensate for interactions with other cells in the device

    layout; and

  - one or more remainder cells (N) that have structures that do not correspond to

    those in the modified cells and also contain areas to prevent extraneous

    structures on the mask from being created by writing files that correspond to

    the modified cells at selected locations on the mask;

- creating a set of mask writer files (720) that correspond to the modified cells and the

  one or more remainder cells; and

- generating a jobdeck (722) for the mask writing tool that specifies the set of mask

  writer files and their locations on the mask.

Regarding claim 34, Leipold discloses in Fig. 2, Fig. 3, Fig. 6 and Fig. 7 the computer-readable medium having a series of instructions that, when executed by a computer, cause the computer to translate device layout data into a format for use by a wafer writing tool by:

- reading a file (710) that defines a number of cells used to produce a device;

- selecting one or more of the cells (714);

- creating one or more modified cells (716) based on the interaction of the selected cells with other cells in the device layout data; and

- creating a description of each of the modified cells (722) as well as their placements on the wafer in a format that is readable by the wafer writing tool.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pierrat et al., Yoshida et al., Miyajima et al., Chang et al. and Saika disclose a method and apparatus for designing a layout.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the
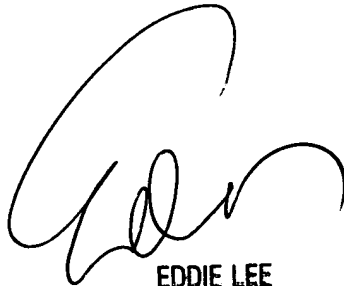
organization where this application or proceeding is assigned are (703) 308-7382 for regular

communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu
Examiner
Art Unit 2815

c.c.
August 9, 2003

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